

AMENDMENTS TO THE CLAIMS

The following listing of claims will replace all prior versions and listings of claims in the application.

Listing Of Claims

1. (Currently Amended) A sound absorber consisting of two interconnected non-woven fabrics ~~(1,2)~~ bonded through at least one of a thermoplastic ~~and/or~~ and a thermoset materials, wherein the first non-woven fabric ~~(1)~~ facing towards the sound-emitting source has a layer thickness within a range of from 2 to 15 mm, a density within a range of from 50 to 500 kg/m³, a weight per surface area within a range of from 0.1 to ~~[[5]]~~ 2.5 kg/m², and a flow resistance within a range of from 50 to 1000 kNs/m⁴, and the second non-woven fabric ~~(2)~~ facing away from the soundemitting source has a layer thickness within a range of from 10 to ~~400~~ 28 mm, a density within a range of from 20 to 100 kg/m³, a weight per surface area within a range of from ~~0.5~~ 0.4 to 1 kg/m², and a flow resistance within a range of from 10 to 40 kNs/m⁴, with a total thickness of the sound absorber within a range of from 12 to 30 mm and a total weight per surface area of the sound absorber within a range of from 0.5 to 3 kg/m².

2. (Currently Amended) The sound absorber according to claim 1, ~~characterized in that~~ wherein said at least one of a first non-woven fabric ~~(1)~~ ~~and/or~~ and a said second non-woven fabric ~~(2)~~ consist of natural fibers and/or synthetic fibers.

3. (Currently Amended) The sound absorber according to claim 1, ~~characterized in that~~ wherein at least one said first non-woven fabric ~~(1)~~ ~~and/or~~ and said

second non-woven fabric (2) contain natural fibers selected from seed fibers, fruit wall fibers, bast fibers, and hard fibers including mixtures thereof.

4. (Currently Amended) The sound absorber according to claim 1, ~~characterized in that~~ wherein at least one of said first non-woven fabric (1) ~~and/or and~~ said second non-woven fabric (2) contain synthetic fibers selected from polyolefins, polyesters, and polyamides as well as viscose and rayon including their mixtures.

5. (Currently Amended) The sound absorber according to claim 1, ~~characterized in that~~ wherein said thermoplastic binder is selected from polyolefins and, ethyl/vinyl acetate copolymers.

6. (Currently Amended) The sound absorber according to claim 1, ~~characterized in that~~ wherein said thermoset binder is selected from phenol-formaldehyde resins, epoxy resins and/or polyamide resins.

7. (Currently Amended) The sound absorber according to claim 1, ~~characterized in that~~ wherein the amount of at least one of said thermoplastic ~~and/or and~~ thermoset binder is from 5 to 50% by weight, based on said first non-woven fabric (1) and/or said second non-woven fabric (2).

8. (Currently Amended) The sound absorber according to claim 1, ~~characterized in that~~ wherein the first non-woven fabric (1) facing towards the sound-emitting source has a layer thickness within a range of from 3 to 10 mm, a density within

a range of from 50 to 300 kg/m³, a weight per surface area within a range of from 0.2 to 2 kg/m², and a flow resistance within a range of from 70 to 500 kNs/m⁴.

9. (Currently Amended) The sound absorber according to claim 1, ~~characterized in that~~ wherein the second non-woven fabric (2) facing away from the sound-emitting source has a layer thickness within a range of from 12 to 18 mm, a density within a range of from 30 to 70 kg/m³, a weight per surface area within a range of from 0.6 to 0.8 kg/m², and a flow resistance within a range of from 15 to 30 kNs/m⁴.

10. (Currently Amended) The sound absorber according to claim 1, ~~characterized in that~~ wherein the total thickness of the sound absorber is within a range of from 15 to 25 mm, and the total weight per surface area of the sound absorber is within a range of from 1 to 2.5 kg/m².

11. (Currently Amended) The sound absorber according to claim 1, ~~characterized in that~~ wherein the ratio of the layer thicknesses of the second non-woven fabric (2) to the first non-woven fabric (1) is from 2:1 to 5:1.

12. (Currently Amended) The sound absorber according to claim 1, ~~characterized in that~~ wherein the ratio of the densities of the first non-woven fabric (1) to the second non-woven fabric (2) is from 3:1 to 6:1.

13. (Currently Amended) A method for the preparation of sound absorbers according to claim 1, characterized by comprising the steps of:

- a) pasting a first base material ~~consisting of~~ including a textile fiber material and at least one of a thermoplastic ~~and/or~~ and a thermosetting binder into a mold; optionally partially, to form the a first non-woven fabric (1);
- b) predensifying the ~~base material~~ first non-woven fabric pasted according to step a) by at least one of heating ~~and/or~~ and pressure;
- c) pasting a second base material ~~consisting of~~ including a textile fiber material and at least one of a thermoplastic ~~and/or~~ and a thermosetting binder, optionally partially, onto the first ~~base material~~ non-woven fabric in the mold to form the a second non-woven fabric (2);
- d) densifying the ~~undensified sound absorber~~ first and second non-woven materials by the action of heat and pressure to form a sound absorber wherein the first non-woven material has a layer thickness within a range of from 2 to 15 mm, a density within a range of from 50 to 500 kg/m³, a weight per surface area within a range of from 0.1 to 2.5 kg/m², and said second non-woven material has a layer thickness within a range of from 10 to 28 mm, a density within a range of from 20 to 100 kg/m³, a weight per surface area within a range of from 0.4 to 1 kg/m², and a flow resistance within a range of from 10 to 40 kNs/m⁴; and
- e) cooling the sound absorber down to room temperature wherein the sound absorber has a total thickness of the sound absorber within a range of from 12 to 30 mm and a total weight per surface area of the sound absorber within a range of from 0.5 to 3 kg/m².

14. (Currently Amended) A method for the preparation of sound absorbers according to claim 1, characterized by comprising the steps of:

- a) pasting a first base material ~~consisting of~~ including a textile fiber material and at least one of a thermoplastic ~~and/or~~ and a thermosetting binder into a mold, optionally ~~partially~~, to form the a first non-woven fabric (1);
- b) predensifying the undensified first non-woven fabric (1) by the action of heat and pressure;
- c) pasting a second base material consisting of a textile fiber material and at least one of a thermoplastic ~~and/or~~ and a thermosetting binder into a mold, optionally ~~partially~~, to form the second non-woven fabric (2);
- d) predensifying the undensified second non-woven fabric (2) by the action of heat and pressure; and
- e) superimposing the first and second non-woven fabrics (1,2) and bonding and densifying them by the action of heat and pressure without an adhesive to form a sound absorber wherein the first non-woven material has a layer thickness within a range of from 2 to 15 mm, a density within a range of from 50 to 500 kg/m³, a weight per surface area within a range of from 0.1 to 2.5 kg/m², and said second non-woven material has a layer thickness within a range of from 10 to 28 mm, a density within a range of from 20 to 100 kg/m³, a weight per surface area within a range of from 0.4 to 1 kg/m², and a flow resistance within a range of from 10 to 40 kNs/m⁴.

15. (Currently Amended) A method for the preparation of sound absorbers ~~according to claim 1, characterized by~~ comprising the steps of:

- a) pasting a first base material consisting of a textile fiber material and at least one of a thermoplastic ~~and/or~~ and a thermosetting binder into a mold, optionally ~~partially~~, to form the a first non-woven fabric (1);

- b) predensifying the undensified first non-woven fabric (1) by the action of heat and pressure;
- c) pasting a second base material consisting of a textile fiber material and at least one of a thermoplastic ~~and/or~~ and a thermosetting binder into a mold, optionally partially, to form the second non-woven fabric (2);
- d) predensifying the second non-woven fabric (2) by the action of heat and pressure; and
- e) superimposing the first and second non-woven fabrics (1,2) and bonding said second non-woven fabric (2) to said first non-woven fabric (1) by needle punching to form a sound absorber wherein the first non-woven material has a layer thickness within a range of from 2 to 15 mm, a density within a range of from 50 to 500 kg/m³, a weight per surface area within a range of from 0.1 to 2.5 kg/m², and said second non-woven material has a layer thickness within a range of from 10 to 28 mm, a density within a range of from 20 to 100 kg/m³, a weight per surface area within a range of from 0.4 to 1 kg/m², and a flow resistance within a range of from 10 to 40 kNs/m⁴.

16. (Cancel)

17. (Original) Use of a sound absorber according to claim 1 as hood insulations, exterior bulkhead insulations, interior bulkhead insulations, textile wheel arch shells and lower shield in the engine compartment; as front floor insulations, middle floor insulations, floor coverings, roof liners, top bulkhead insulation, side trim and seat well insulations in the passenger compartment, or as textile wheel arch shells, trunk floor linings, rear shelves, trunk cover linings and trunk side linings in the trunk.

18. (Currently Amended) The sound absorber according to claim 1 characterized in that wherein the ratio of the layer thicknesses of the first non-woven fabric (1) to the second non-woven fabric (2) is from 3:1 to 4:1.

19. (Currently Amended) The sound absorber according to claim 1, characterized in that wherein the ratio of densities of the first non-woven fabric (1) to the second non-woven fabric (2) is from 4:1 to 5:1.